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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/160,991	09/25/1998	TZYH-CHYANG CHERNG		6990

26875 7590 12/17/2004

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EXAMINER	
PAYER, HWEI SIU CHOU	

ART UNIT	PAPER NUMBER
3724	

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/160,991	CHERNG ET AL.	
	Examiner	Art Unit	
	Hwei-Siu C. Payer	3724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10-22-2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16,20-22,24-27 and 29-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16, 20-22, 24-27 and 29-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

The amendment filed on 10-22-2004 has been entered.

Claims Rejection - 35 U.S.C. 103(a)

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-7, 10, 12-14, 16, 20-22, 24, 27 and 29-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (U.S. Patent No. 3,952,179) in view of Boucher et al. (U.S. Patent No. 4,484,959) and Maybon (U.S. Patent No. 5,580,472).

Baker discloses a method of forming a cutting die (see Abstract) comprising the steps of cladding a blade material (12) onto a surface (see Fig.3) of a rotatable (see column 5, lines 10-11) cylindrical die body (10) of a material different and less harder than the blade material (see column1, lines 48-58) to form an integral blade in a pattern including intersecting portions (24,25, see column 4, lines 65-67) extending outwardly from the die surface (see Fig.6), and wherein the integral blade wholly comprises the blade material cladded by a heat source; and shaping the cladded blade by electrical discharge machining (EDM), milling or grinding (see column 1, lines 61-65 and column 3, lines 50-61) substantially as.

The mere differences between Baker and the claimed invention are that Baker is silent about the form the blade material is when introduced onto the die body during cladding, and Baker is also silent about the heat source used for cladding.

However, it is known in the art to hard-surface a soft blade core by cladding a power material of a greater hardness onto the soft blade core to form a layer of hard coating as a working/cutting surface for the blade as evidenced by Boucher et al.

The powder form is more advantageous than a conventional weldable steel wire or strip, since the use of high-speed steel power of great hardness makes it possible to obtain coatings in which metallurgical defects are absent (see column 6, lines 2, lines 62-65 and column 6, lines 3-11 in Boucher et al.).

Therefore, it would have been obvious to one skilled in the art at the time this invention was made to modify Baker by cladding the blade material (12) in a powder form by means of laser for the advantage stated above.

Baker as modified fails to show the claimed method of carrying out the laser cladding.

However, the claimed laser cladding is well known in the art as evidenced by Maybon which shows cladding a hard material onto a steel substrate (8) by heating an area (32) of the steel substrate (8) with a laser beam (28) and introducing a cladding power (comprising tungsten carbide, nickel, etc., see column 4, lines 55-60) onto the heated area (see column 6, lines 16-18) while heating the area (32) to form a layer of

deposit that is compositionally different and of greater hardness than the steel substrate (8). The cladding can be done with one single pass of the laser beam or a number of successive passes depending upon the thickness of the deposit desired (see column 6, lines 31-37). The cladding powder is fed through a feeder that is coaxial with a beam of the laser (see column lines 63-65).

In view of this fact, it would have been obvious to one skilled in the art at the time this invention was made to use a well known laser cladding method such as that of Maybon's for cladding Baker's cladding power onto the blade body.

Claims 10 and 21 each recite the hardness of the die body and of the cladding power, and a percentage of the tungsten carbide presented in the cladding power, respectively.

The claimed hardness and the percentage of the tungsten carbide in the cladding powder are not patentably distinct over Baker as modified, since the blade material and the die body material selected depend more upon the blade performance criteria and the die body parameters (as evidenced by Applicant's specification on page 15) than on any inventive concept.

3. Claims 8, 9, 11, 15, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (U.S. Patent No. 3,952,179), Boucher et al. (U.S. Patent No. 4,484,959) and Maybon (U.S. Patent No. 5,580,472) as applied to claims 1, 10, 13 and 22 above, and further in view of Cox et al. (U.S. Patent No. 5,417,132).

Baker as modified above shows the claimed method steps of forming a cutting die except it lacks the step of heat/cryogenic treating the blade

Cox et al. teach heat and cryogenic treating blades after the blades are shaped (see Abstract).

It would have been obvious to one skilled in the art to further modify Baker by providing a heat/cryogenic step after the blade is shaped to harden and prolong the life of the blade as taught by Cox et al.

Remarks

Applicant's arguments with respect to claims 1-16, 20-22, 24-27 and 29-31 have been considered but are moot in view of the new ground(s) of rejection.

The declaration of Mr. Hsu under 37 C.F.R. 1.132 filed on 10-22-2204 has been considered. However, Examiner disagrees with Mr. Hsu's comments. First of all, Baker does not use material in "wire form" for cladding as Mr. Hsu's alleged. In fact, Baker is "silent" about the form of the cladding material. Furthermore, Mr. Hsu does not provide any evidence as to why powder cladding would not work in Baker. He simply states "Baker's welding process cannot deposit blade material from powder form". However, there is no support for this statement.

The declarations of Mr. Moore and Mr. Radlick have been considered. The declarations mainly express the desirable result of powder cladding that makes the dies produced by Bernal, Inc. more durable and cost effective. However, powder cladding

has a known result of cost saving and more durable due to absence of metallurgical defects (see Boucher et al. - U.S. Patent No. 4,484,959). Therefore, the advantage of durability and cost effectiveness by using powder cladding is not "an unexpected result" after all.

Point of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hwei-Siu C. Payer whose telephone number is 571-272-4511. The examiner can normally be reached on Monday through Friday, 7:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan N. Shoap can be reached on571-272-4514. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for official communications and 571-273-4511 for proposed amendments.

H Payer
December 13, 2004

Hwei-Siu Payer
Primary Examiner